

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 1, 2017/2018

### BFN3174 – FINANCIAL MODELLING

(All sections / Groups)

12 OCTOBER 2017

9.00 a.m. - 11.00 a.m.

(2 Hours)

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#### INSTRUCTIONS TO STUDENTS

1. This question paper consists of **14** pages.
2. Answer **ALL FOUR** questions in **FOUR SEPARATE** Excel spreadsheets in **ONE SINGLE** Excel file.
3. Your Excel file should be named with your **STUDENT ID**, followed by your **NAME**, for example: **111111623\_HISHAM.xls**
4. **SAVE** your answers for all questions in the provided **THUMB-DRIVE**.
5. Please also copy your answers together with formulas onto the given templates of Excel spreadsheets in the **APPENDIX**.
6. Mark distributions are shown in the given templates.

**QUESTION 1 (25 MARKS)**

On 19 July 2017, you are offered a US Treasury note. Here are the terms of the note:

- The note has a face value of \$100,000 and 8% coupon rate. The note matures on 1 December 2023.
- The semi-annual interest on the note is paid on 1 June and 1 December of each year.
- The last interest payment was 1 June 2017 and the next interest payment is on 1 December 2017.
- Other interest payments are on 1 June 2018, ..., 1 December 2023. On this last date of the bond's principal of \$100,000 is also returned.
- On 19 July 2017, the quoted bond price is \$110,000.

Using the provided template in the Appendix to model the following questions:

- a. Calculate the accrued interest for the bond. (8 marks)
- b. Compute the actual bond price. (9 marks)
- c. Use XIRR and YIELD functions in Microsoft Excel to calculate the annualized yield to maturity (YTM). (8 marks)

**QUESTION 2 (25 MARKS)**

- a. Hazal Automation has just announced results that show that the free cash flow (FCF) for the past year is RM100 million. An experienced analyst believes that the growth rate of the Hazal Automation for the next 10 years will be 15% per year and that after 10 years the growth rate will be 7% annually. Hazal Automation's weighted average cost of capital (WACC) is 16%, and the company has 100 million shares outstanding. Value the shares assuming that the FCFs occur at year end. Hazal Automation has no debt and no excess cash reserves. (20 marks)
- b. Suppose that the FCFs occur mid-year. What would your answer be now? (5 marks)

Continued...

**QUESTION 3 (25 MARKS)**

Considering the following data concerning Ivanka Company (Ivana's stock is not currently listed on a stock exchange).

- Expected return for the market portfolio,  $E(r_M) = 15\%$
- Cost of debt,  $r_D = 8\%$
- Corporate tax rate,  $T_c = 35\%$
- Covariance between Ivanka Company's stock prices and market portfolio index prices,  $\text{Cov}(r_{\text{Ivanka}}, r_M) = 0.5$
- Value of debt,  $D = \text{RM}10,000,000$
- Risk free rate,  $r_f = 3\%$
- Variance for the market portfolio,  $\text{Var}(r_M) = 0.5$
- Value of equity,  $E = \text{RM}500,000,000$

Using the template given in the Appendix to model:

- a. the cost of equity for Ivanka Company.  
(8 marks)
- b. the weighted average cost of capital (WACC) for Ivanka Company.  
(6 marks)
- c. Suppose Ivanka Company issues its stocks in an initial public offering (IPO). After the IPO the company has 3,000,000 shares, worth RM20 each. Model the WACC for Ivanka Company after the IPO?  
(9 marks)

**Continued...**

**QUESTION 4 (25 MARKS)**

Susan Loh, the chief financial officer of Pauxin Holding Company is preparing a forecast of net income for the coming year, 2017. She develops her pro-forma statement of profit and loss based on the company's statement of profit and loss given in the Appendix.

Susan Loh forecasts that Pauxin Holding Company's sales will be RM5 million. Interest expenses are expected to be the same amount as this year. The company will pay cash dividends of RM250,000 during 2017. Use the per cent of sales method to estimate the company's net income and prepare a pro forma statement of profit and loss for year ended 2017.

**End of Page**

## **APPENDIX: TEMPLATES FOR ALL QUESTIONS**

The given templates in this Appendix are:

1. to be followed exactly when carrying out your modeling in the Microsoft Excel for all of the four given questions.
2. to be used to record answers produced in your Excel spreadsheets for all of the four given questions as follows:
  - Each resulted value should be recorded on the correct cell as it appears on your actual excel spreadsheet in the Microsoft Excel.
  - Formula for each recorded value should be recorded in the 'Excel Formula' column.
  - Formulas for more than one columns can be entered in one single excel cell under the 'Excel Formula' 's column and spaced from one another with a slash sign "/"

ANSWER FOR QUESTION 1 (25 MARKS):

	A	B	C
1	<b>INPUT ZONE</b>		
2	Current date		
3	Previous interest payment date		
4	Next interest payment date		
5	Face Value (\$)		
6	Annual coupon rate		
7	Bond price		

## ANSWER FOR QUESTION 1 (25 MARKS) (CONTINUED...):

	A	B	C	D
9	<b>MODELING ZONE</b>		<b>EXCEL FORMULA</b>	
10	Semi-annual coupon (\$)			(1 marks)
11	Days since last coupon date			(1 marks)
12	Days between last coupon date and next coupon date			(2 marks)
13	<b>Answer for 2a:</b>			
14	Accrued interest			(2 marks)
15	<b>Answer for 2b:</b>			
16	Invoice price (bond price + accrued)			(2 marks)

## ANSWER FOR QUESTION 1 (25 MARKS) (CONTINUED...):

	A	B	C	D
17	Answer for 2c:			
18	Date	Bond cash flow	EXCEL FORMULA	
19	19-Jul-17			(2 marks)
20	1-Dec-17			(5 marks)
21	1-Jun-18			
22	1-Dec-18			
23	1-Jun-19			
24	1-Dec-19			
25	1-Jun-20			
26	1-Dec-20			
27	1-Jun-21			
28	1-Dec-21			
29	1-Jun-22			
30	1-Dec-22			
31	1-Jun-23			
32	1-Dec-23			(2 marks)
33	YTM (XIRR formula)			(4 marks)
34	YTM (YIELD formula)			(4 marks)



**ANSWER FOR QUESTION 2 (25 MARKS):**

	A	B	C	D
1	<b>INPUT ZONE</b>			
2	Base year FCF			
3	WACC			
4	High growth rate, $g_{\text{high}}$			
5	Normal growth rate, $g_{\text{normal}}$			
6	Number of high growth years			
7	Debt			
8	Cash			
9	Number of shares, end 2016			
10				

ANSWER FOR QUESTION 2 (25 MARKS) (CONTINUED...):

	A	B	C	D
10				
11	MODELLING ZONE		EXCEL FORMULA	
12	Term 1 factor: $(1+g_{\text{high}})/(1+WACC)$			(3 marks)
13				
14	Term 1: PV of high-growth cash flows			(3 marks)
15	Term 2: PV of normal-growth cash flows			(3 marks)
16	Enterprise value			(3 marks)
17	Add cash			(2 marks)
18	Subtract debt			(2 marks)
19	Value of equity			(2 marks)
20				
21	Share value			(2 marks)
22				
23	b. If cash flows occur in mid-year, then:			
24	Value of equity			(3 marks)
25	Share value			(2 marks)
26				

## ANSWER FOR QUESTION 3 (25 MARKS):

	A	B	C
1	INPUT ZONE		
2	$E(r_M)$		
3	$r_D$		
4	$T_C$		
5	$\text{Cov}(r_{\text{ivanka}}, r_M)$		
6	D		
7	$\text{Var}(r_M)$		
8	$r_F$		
9	Value of Equity E before the IPO		
10	Share Price		
11	Number of Shares		

## ANSWER FOR QUESTION 3 (25 MARKS) (CONTINUED...):

	A	B	C	D
12				
13	MODELLING ZONE		EXCEL FORMULA	
14	A. Finding the company cost of equity.			
15	$\beta$			(4 marks)
16	$r_E$			(4 marks)
17				
18	B. Finding the company WACC.			
19				
20	$V=D+E$			(3 marks)
21	WACC			(4 marks)
22				
23	C. WACC after the IPO			
24				
25	Value of Equity after the IPO			(3 marks)
26	$V=D+E$			(3 marks)
27	WACC			(4 marks)

## ANSWER FOR QUESTION 4 (25 MARKS):

	A	B	C
1	INPUT ZONE		
2	Estimated Sales for 2017		
3	Taxes		
4	Dividend for 2016		
5	Dividend for 2017		

## ANSWER FOR QUESTION 4 (25 MARKS) (CONTINUED...):

	A	B	C	D	E	F
7	<b>MODELLING ZONE</b>					
8		<b>Statement of Profit and Loss of Pauxin Holding Company for the Year Ended</b> <b>(In RM)</b>				
9						
10		<b>December 2016</b>	<b>% of sales</b>	<b>December 2017</b>	<b>EXCEL FORMULA</b>	
11	Sales	4,000,000				(1 mark)
12	Less: Cost of goods sold	2,560,000		/	/	(3 marks)
13	Gross Profit	1,440,000		/	/	(2 marks)
14	Less: Operating expenses	350,000		/	/	(3 marks)
15	Earning before interest and taxes	1,090,000		/	/	(2 marks)
16	Less: Interest expense	100,000		/	/	(2 marks)
17	Earning before taxes	990,000		/	/	(3 marks)
18	Less: Taxes	346,500		/	/	(3 marks)
19	Earnings after taxes	643,500		/	/	(2 marks)
20	Less: Cash Dividends	23,200		/	/	(2 marks)
21	Retained Earnings	620,300		/	/	(2 marks)